BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.

BROWDY AND NEIMARK, P.L.L.C.
ATTORNEYS AT LAW
PATENT AND TRADEMARK CAUSES
SUITE 300
624 NINTH STREET, N.W.
WASHINGTON, D.C. 20001-5303
TELEPHONE (202)-628-5197

TELECOPIER FACSIMILE
(202) 737-3528
(202) 393-1012
E-MAIL
mail@browdyneimark.com
PATENT AGENT
ALLEN C. YUN, PH.D.
*ADMITTED IN FL ONLY
PRACTICE SUPERVISED BY
PRINCIPALS OF THE FIRM

ALVIN BROWDY (1917-1998)
SHERIDAN NEIMARK
ROGER L. BROWDY

ANNE M. KORNBAU
NORMAN J. LATKER
DIANA MICHELLE SOBO*

OF COUNSEL
IVER P. COOPER
JAY M. FINKELSTEIN

TELEFAX CONTROL SHEET

SENT TO: Ms. Francine Young / PCT - Fax No. 703-305-3230

DATE SENT: August 9, 2001

SUBJECT: U.S. Appln. No. 09/744,681 - U.S. National Phase of PCT/IL99/00403 - Our Ref: BEN-YEHUDA=1

No. of pages (including this cover sheet): 21

FROM: Angela Loeblein, Secretary to Roger L. Browdy

Remarks:

Per your telephone request of August 7, 2001, attached please find a copy of the IPER which was issued in PCT/IL99/00403. Please advise if you need anything further from us.

If this transmission is not well received, please advise us at our telecopier no. 202-737-3528 or by e-mail at mail@browdyneimark.com, or call our voice telephone no. 202-628-5197.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
6.063(PCT)		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IL99/00403	22/07/1999	27/07/1998

International Patent Classification (IPC) or national classification and IPC
A23B7/157

Applicant
MAKHTESHIM CHEMICAL WORKS LTD. et al.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authori and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the International application
   - VIII ☒ Certain observations on the International application

Date of submission of the demand	Date of completion of this report
23/02/2000	08.12.2000
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Georgopoulos, N Telephone No. +49 89 2399 2634

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL99/004

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Offic response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed the report since they do not contain amendments (Rules 70.16 and 70.17).)*:

Description, pages:

1-12,14-19, 21-27	as originally filed			
13,20	as received on	17/11/2000	with letter of	15/11/2000

Claims, No.:

1-56	as received on	17/11/2000	with letter of	15/11/2000

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under R 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosur the international application as filed has been furnished.
   - ☐ The statement that the information recorded in computer readable form is identical to the written sequenc listing has been furnished.

4. The amendments have resulted in the cancellation of:

   - ☐ the description, pages:
   - ☐ the claims, Nos.:
   - ☐ the drawings, sheets:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL99/004

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have be considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to tl report.)
see separate sheet

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicabilit citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-42, 47-48, 50-53
	No:	Claims	43-46, 49
Inventive step (IS)	Yes:	Claims	47, 48
	No:	Claims	1-46, 49-53
Industrial applicability (IA)	Yes:	Claims	1-53
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

INTERNATIONAL PRELIMINARY EXAMINATION REPORT - SEPARATE SHEET

International application No. PCT/IL99/00403

Item I

1 The amendment filed with the letter dated 15.11.00 does not fulfil the requirements of Art.34 (2) (b) PCT.

1.1 The newly introduced sentence "Percentages throughout the specification indicate weight by weight percentages", on page 13, fourth textline from the bottom, introduces subject-matter which extends beyond the content of the international application as filed. In the description and the claims as originally filed there is namely no teaching that would serve as basis therefor.

1.3 Consequently, all citations and explanations mentioned under Item V, are based on the application documents as originally filed.

Item V

2 Reference is made to the following documents:
D1: US-A-5 535 667
D2: US-A-5 658 595
D3: US-A-4 915 955
D4: US-A-5 085 880
D5: FR-A-2 728 143
D6: US-A-3 506 458

3 The present invention does not fulfil the requirements of Art.33 (2) PCT because the subject-matter of independent claims 43 (plant matter and foodstuffs), 44 (process), 45 (process), 46 (potatoes, potato tubers and other plant growth material) and 49 (process) is not new.

3.1 *Claim 43*
The subject-matter of said claim is anticipated by the technical teaching of any of the following documents:
i/ D1 (see examples 1 to 7 of D1);
ii/ D2 (see column 1, lines 8 to 11 and from column 1, line 59 to column 2, line 2 of D2);

iii/ D3 (see column 4, lines 46 to 57 and claim 1 of D3);
iv/ D4 (see claim 1 of D4);
v/ D5 (see claims 1 and 10 of D5); or
vi/ D6 (see column 2, lines 40 to 51 and examples 1, 2 and 5 of D6).

Claims 44 and 45
The subject-matter of the above-mentioned claims is anticipated by the technical teaching of any of the following documents:
i/ D4 (see claim 1 of D4);
ii/ D5 (see claims 1 and 10 of D5); or
iii/ D6 (see column 2, lines 40 to 51 and examples 1, 2 and 5 of D6).

Claim 46
The subject-matter of said claim is anticipated by the technical teaching of any of the following documents:
i/ D1 (see examples 5 and 6 of D1);
ii/ D4 (see claim 1 of D4);
iii/ D5 (see claim 1 and 10 of D5); or
iv/ D6 (see column 2, lines 40 to 51, claims 1 to 5 and examples 1, 2 and 5 of D6).

Claim 49
The subject-matter of this claim is anticipated by the technical teaching of any of the following documents:
i/ D2 (see claim 7 of D2);
ii/ D3 (see column 4, lines 46 to 59 and claim 1 of D3);
iii/ D4 (see claim 1 of D4); or
iv/ D5 (see claim 10 of D5).

4 In contrast thereto, the subject-matter of independent claims 1 (process), 47 (composition) and 48 (composition) is new.

4.1 Claim 1
The subject-matter of said claim is not anticipated by the technical teaching of any of the claim D1-D6. None of these documents disclose a treatment of plant matter or foodstuffs during distribution, marketing, preplanting, growing, pre and post harvest

with an effective aqueous dosage of H_2O_2 as claimed in present claim 1 (see column 8, lines 24 to 30 of D1, claim 7 of D2, claim 1 of D3, claim 1 of D4, claim 10 of D5 and column 2, lines 40 to 51 of D6).

Claim 47

The subject-matter of said claim is not anticipated by the technical teaching of any of the claim D1-D6. None of D1, D2, D4 or D6 mentions a metal ion concentration as in present claim 47 (see column 8, lines 24 to 30 of D1, claims 4 and 5 of D2, claim 1 of D4 as well as column 2, lines 40 to 51, examples 1, 2 and 5 and claims 1 to 5 of D6). None of D3 or D5 brings to light either a metal ion concentration or a novelty-destroying concentration of H_2O_2 to that of present claim 47 (see claims 1 and 3 of D3 and claims 1 to 7 of D5).

Claim 48

The subject-matter of said claim is not anticipated by the technical teaching of any of the claim D1-D6. None of D1-D6 mentions a metal ion concentration as in present claim 48.

5 The subject-matter of independent claims 47 and 48 (composition) involves an inventive step (Art.33 (3) PCT), but the subject-matter of independent claim 1 (process) does not.

5.1 D2 is considered to be the closest prior art document. According to the present application the problem to be solved may, therefore, be regarded as how to provide a composition for treating plant matter and foodstuffs, wherein said composition:
i/ eliminates sprouting for extended periods;
ii/ gives higher yields in unit per area; and
iii/ higher yield of marketable sizes (see pages 24 to 26, examples 18 to 20 of the present description as well as column 3, lines 8 to 10 and 39 to 42, column 4, lines 55 to 57, column 5, lines 6 to 8 and column 6, lines 64 to 68 of D2). Said advantages are brought about by the synergistic effect of the components (a) and (b) in present claim 47 and (a) to (c) in present claim 48. The component (b) has not been disclosed either in D3 or in any of the documents cited in the International Search Report (see point 4.1 above). Therefore, the person skilled in the art would not be prompted to use the technical teaching of D2, modify it using the technical teaching

of any of the documents D1 or D3-D6 and arrive at the claimed composition. Consequently, the subject-matter of independent claims 47 and 48 (composition) would not be obvious to the person skilled in the art having regard to the available prior art.

5.2 The above-mentioned synergistic effect has not been achieved by the subject-matter of present claim 1, as only an "effective concentration of hydrogen peroxide" is therein mentioned. Ingredients falling under the above-mentioned categories (b) and (c) are entirely optional. Thus, said advantages (see point 5.1 above) seem to be, as far as the subject-matter of claim 1 is concerned, of speculative nature.

6 The subject-matter of claims 1-53 is susceptible of industrial application in the field of the food industry (Art.33 (4) PCT).

Item VII

7 Contrary to the requirements of Rule 5.1 (a) (ii) PCT, the relevant background art disclosed in the documents D1-D6 is not mentioned in the description, nor are these documents identified therein.

8 The following "obvious errors" (Rule 91 (1) (b) PCT) have not been corrected:

8.1 The units "PPM" and "PPB" throughout the description and the claims do not read "ppm" and "ppb", respectively.

8.2 The word "micron" in present claim 42 does not read "microns".

8.3 The letter "(c)" in present claim 47 should read "(b)".

Item VIII

9 The vague and imprecise statement "While certain embodiments ... or spirit ..., spirit and general scope" in the description on page 27 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them (see also the

PCT Guidelines, III, 4.3a).

10 The following features are not mentioned in the description:
i/ ranges of claims 7 and 8;
ii/ the terms "silver ion" and "copper ion" (see claims 9 and 10, respectively);
iii/ the expression "a mixture of silver and copper ion" (see claim 11); and
iv/ the ranges in claims 18-21, 24-27, 29 and 31-42.
Therefore, present claims 7-11, 18-21, 24-27, 29 and 31-42 are not fully supported by the description as required by Article 6 PCT.

losses of potatoes during storage, for example, by decay caused by infection with microorganisms, fungi, algae, yeasts, molds and viruses.

It is yet another purpose of certain aspects of the present invention to provide storage process for storage of plant matter and foodstuffs that prevents qualitative and quantitative losses during storage, by undesirable microbiological or biochemical processes of the foodstuff itself, including when such processes are effected and/or promoted by high humidity and high temperature storage conditions.

It is also an object of certain aspects of the present invention to provide processes and compositions that can be used to reduce and eliminate harmful organisms and substances from earth, equipment, materials, spaces and surfaces

Moreover, it is an important object of certain aspects of the present invention to achieve the above purposes in a simple way, that is safe to use, non-toxic, odorless, without hazardous residues and/or side effects, compatible with the environment and that does not leave any undesirable chemical residues in the materials or water, earth, other growth media and substrates, or on equipment, materials, water. spaces and surfaces exposed to the treatment by the process and compositions of the present invention, or endanger the health of operators implementing the process or handling the compositions or the foodstuffs treated by them. The process and compositions of the present invention are cost effective.

SUMMARY OF THE INVENTION

Percentages throughout the specification indicate weight by weight percentages.

In accordance with a preferred embodiment of the present invention, there is provided an environmentally compatible process for treating plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre

Intermittent treatment by means of the process and compositions of the present invention, protects foodstuff and plant matter so treated form adverse effects of condensation of water on the surfaces of the foodstuffs and plant matter, so treated.

The application of the solution in the form of ultra small drops by solution atomizing systems that produce "dry" fogs with particle sizes of less than and up to 1000 microns in diameter, has been found to provide particularly beneficial results. These include compensation for or prevention of water loss, inhibition of sprouting, rot inhibition, less overall losses and higher yields for treated seeds. The beneficial "dry" fog is attributed to the fact that very small particles behave to a large extent like a gas. They facilitate the achievement of very high relative humidity, i.e., even as high as 99%+, without any condensation on the stored matter. Furthermore, the small particles show a very high penetrability into small cracks and spaces. As a consequence, even when potatoes are stored in ordinary stacks or sacks, the "dry" fog storage has a high degree of penetrability and accessibility to all points in the stack or sack. This means that even in the simplest and most space compact facilities, stored plant matter, such as potatoes and similar items, can be effectively treated to prevent weight loss due to dehydration as well as softening and other deteriorative processes brought about by an inadequate humidity environment.

Another benefit of the "dry" fog is that it allows higher concentrations of hydrogen peroxide and other active ingredients to be used without causing damage to the protective peel or surface of the plant matter so treated. The higher concentration of treating solutions enhances their effectiveness in the rapid elimination of pathogens. When the foodstuff and plant matter is treated by dipping or ordinary spraying, the optimal hydrogen peroxide concentration should be substantially between 0.5%-1.5% and treating time between a few seconds up to a few minutes. When the treatment is applied as a "dry" fog, the hydrogen peroxide concentration may be up to 40% and the time of application from several hours to a number of days.

AMENDED SHEE

CLAIMS:

1. An environmentally compatible process for treating plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre and post harvest, to increase yields and yields of marketable sizes, eliminate health hazards, impart storage stability, extend shelf life and inhibit premature sprouting, rooting, "black-heart" formation, germination, blossoming, and losses in quality and/or quantity of said plant matter and foodstuffs as result of premature sprouting, rooting, "black-heart" formation, germination and blossoming, said plant matter and foodstuffs including tubers – such as potatoes, bulbs, seeds grains and other germinating matter or items, plant vegetative propagation matter or items, as well as various fruits and vegetables including solanaceous fruits and vegetables, by treating the said plant matter or foodstuffs, plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre and post harvest, with an effective aqueous dosage comprising an effective concentration of hydrogen peroxide and optionally comprising, an effective dosage of one or more additional components selected form the following types of substances:

(i) effective trace concentrations of dispersed metals or metal ions;

(ii) effective concentrations of other and/or additional hydrogen peroxide activators, synergists and promoters;

(iii) effective concentrations of hydrogen peroxide stabilizers and modifiers;

(iv) effective concentrations of pH regulators;

(v) effective concentrations of organic and/or inorganic additives,

AMENDED SHEET

49. An environmentally compatible process for reducing and eliminating harmful organisms and substances form earth and other growth media and substrates, by treating the said earth, other growth media and substrates, with an effective dosage of a composition comprising an effective concentration of hydrogen peroxide and optionally comprising, an effective dosage of one or more additional components selected from the following types of substances:

(i) effective trace concentrations of dispersed metals or metal ions;

(ii) effective concentrations of other and/or additional hydrogen peroxide activators, synergists and promoters;

(iii) effective concentrations of hydrogen peroxide stabilizers and modifiers;

(iv) effective concentrations of pH regulators;

(v) effective concentrations of organic and/or inorganic additives.

50. Process as in claim 22 wherein the air to liquid volume ration in the fog is between 300:1 and 1200:1.

51. Process as in claim 22 wherein the air to liquid volume ration in the fog is between 500:1 and 700:1.

52. Process as in claim 22 wherein the air to liquid volume ration in the fog is between 300:1 and 1200:1.

AMENDED SHEET

53. Process as in claim 28 wherein the air to liquid volume ration in the fog is between 500:1 and 700:1.

54. An environmentally compatible process for treating plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre and post harvest, to increase yields and yields of marketable sizes, eliminate health hazards, impart storage stability, extend shelf life and inhibit pathogenic losses and other processes causing losses in quality and/or quantity of said plant matter and foodstuffs, said plant matter and foodstuffs including tubers – such as potatoes, bulbs, seeds, grains and other germinating matter or items, plant vegetative propagation matter or items, as well as various fruits and vegetables including solanaceous fruits and vegetables, by treating the said plant matter or foodstuffs, plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre and post harvest, with a synergistic effective aqueous dosage comprising an effective concentration of hydrogen peroxide and silver ion and optionally comprising, an effective dosage of one or more additional components selected form the following types of substances:

(i) effective trace concentrations of dispersed metals or metal ions;

(ii) effective concentrations of other and/or additional hydrogen peroxide activators, synergists and promoters;

(iii) effective concentrations of hydrogen peroxide stabilizers and modifiers;

(iv) effective concentrations of pH regulators;

AMENDED SHEET

(v) effective concentrations of organic and/or inorganic additives, wherein the effective concentration of hydrogen peroxide, time of treatment and form of application are such as to prevent such plant matter and foodstuffs quality and/or quantity loss, but at the same time not so high as to cause or induce damage to the plant matter and foodstuffs themselves.

55. Plant-matter and foodstuffs when treated substantially as hereinbefore in claim 54.

56. An environmentally compatible process for reducing and eliminating harmful organisms and substances form equipment, materials, water, spaces and surfaces by treating said equipment, materials, water, spaces and surfaces with an effective dosage of a synergistic composition comprising an effective concentration of hydrogen peroxide, silver ion and an effective trace concentrations of dispersed metals or metal ions and optionally comprising, an effective dosage of one or more additional components selected from the following types of substances:

(i) effective concentrations of other and/or additional hydrogen peroxide activators, synergists and promoters;

(ii) effective concentrations of hydrogen peroxide stabilizers and modifiers;

(iii) effective concentrations of pH regulators;

(iv) effective concentrations of organic and/or inorganic additives.

AMENDED SHEET

losses of potatoes during storage, for example, by decay caused by infection with microorganisms, fungi, algae, yeasts, molds and viruses.

It is yet another purpose of certain aspects of the present invention to provide storage process for storage of plant matter and foodstuffs that prevents qualitative and quantitative losses during storage, by undesirable microbiological or biochemical processes of the foodstuff itself, including when such processes are effected and/or promoted by high humidity and high temperature storage conditions.

It is also an object of certain aspects of the present invention to provide processes and compositions that can be used to reduce and eliminate harmful organisms and substances from earth, equipment, materials, spaces and surfaces

Moreover, it is an important object of certain aspects of the present invention to achieve the above purposes in a simple way, that is safe to use, non-toxic, odorless, without hazardous residues and/or side effects, compatible with the environment and that does not leave any undesirable chemical residues in the materials or water, earth, other growth media and substrates, or on equipment, materials, water. spaces and surfaces exposed to the treatment by the process and compositions of the present invention, or endanger the health of operators implementing the process or handling the compositions or the foodstuffs treated by them. The process and compositions of the present invention are cost effective.

SUMMARY OF THE INVENTION

Percentages throughout the specification indicate weight by weight percentages.

In accordance with a preferred embodiment of the present invention, there is provided an environmentally compatible process for treating plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre

AMENDED SHEET

Intermittent treatment by means of the process and compositions of the present invention, protects foodstuff and plant matter so treated form adverse effects of condensation of water on the surfaces of the foodstuffs and plant matter, so treated.

The application of the solution in the form of ultra small drops by solution atomizing systems that produce "dry" fogs with particle sizes of less than and up to 1000 microns in diameter, has been found to provide particularly beneficial results. These include compensation for or prevention of water loss, inhibition of sprouting, rot inhibition, less overall losses and higher yields for treated seeds. The beneficial "dry" fog is attributed to the fact that very small particles behave to a large extent like a gas. They facilitate the achievement of very high relative humidity, i.e., even as high as 99%+, without any condensation on the stored matter. Furthermore, the small particles show a very high penetrability into small cracks and spaces. As a consequence, even when potatoes are stored in ordinary stacks or sacks, the "dry" fog storage has a high degree of penetrability and accessibility to all points in the stack or sack. This means that even in the simplest and most space compact facilities, stored plant matter, such as potatoes and similar items, can be effectively treated to prevent weight loss due to dehydration as well as softening and other deteriorative processes brought about by an inadequate humidity environment.

Another benefit of the "dry" fog is that it allows higher concentrations of hydrogen peroxide and other active ingredients to be used without causing damage to the protective peel or surface of the plant matter so treated. The higher concentration of treating solutions enhances their effectiveness in the rapid elimination of pathogens. When the foodstuff and plant matter is treated by dipping or ordinary spraying, the optimal hydrogen peroxide concentration should be substantially between 0.5%-1.5% and treating time between a few seconds up to a few minutes. When the treatment is applied as a "dry" fog, the hydrogen peroxide concentration may be up to 40% and the time of application from several hours to a number of days.

AMENDED SHEET

CLAIMS:

1. An environmentally compatible process for treating plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre and post harvest, to increase yields and yields of marketable sizes, eliminate health hazards, impart storage stability, extend shelf life and inhibit premature sprouting, rooting, "black-heart" formation, germination, blossoming, and losses in quality and/or quantity of said plant matter and foodstuffs as result of premature sprouting, rooting, "black-heart" formation, germination and blossoming, said plant matter and foodstuffs including tubers – such as potatoes, bulbs, seeds grains and other germinating matter or items, plant vegetative propagation matter or items, as well as various fruits and vegetables including solanaceous fruits and vegetables, by treating the said plant matter or foodstuffs, plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre and post harvest, with an effective aqueous dosage comprising an effective concentration of hydrogen peroxide and optionally comprising, an effective dosage of one or more additional components selected form the following types of substances:

(i) effective trace concentrations of dispersed metals or metal ions;

(ii) effective concentrations of other and/or additional hydrogen peroxide activators, synergists and promoters;

(iii) effective concentrations of hydrogen peroxide stabilizers and modifiers;

(iv) effective concentrations of pH regulators;

(v) effective concentrations of organic and/or inorganic additives,

AMENDED SHEET

49. An environmentally compatible process for reducing and eliminating harmful organisms and substances form earth and other growth media and substrates, by treating the said earth, other growth media and substrates, with an effective dosage of a composition comprising an effective concentration of hydrogen peroxide and optionally comprising, an effective dosage of one or more additional components selected from the following types of substances:

(i) effective trace concentrations of dispersed metals or metal ions;

(ii) effective concentrations of other and/or additional hydrogen peroxide activators, synergists and promoters;

(iii) effective concentrations of hydrogen peroxide stabilizers and modifiers;

(iv) effective concentrations of pH regulators;

(v) effective concentrations of organic and/or inorganic additives.

50. Process as in claim 22 wherein the air to liquid volume ration in the fog is between 300:1 and 1200:1.

51. Process as in claim 22 wherein the air to liquid volume ration in the fog is between 500:1 and 700:1.

52. Process as in claim 22 wherein the air to liquid volume ration in the fog is between 300:1 and 1200:1.

AMENDED SHEET

53. Process as in claim 28 wherein the air to liquid volume ration in the fog is between 500:1 and 700:1.

54. An environmentally compatible process for treating plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre and post harvest, to increase yields and yields of marketable sizes, eliminate health hazards, impart storage stability, extend shelf life and inhibit pathogenic losses and other processes causing losses in quality and/or quantity of said plant matter and foodstuffs, said plant matter and foodstuffs including tubers – such as potatoes, bulbs, seeds grains and other germinating matter or items, plant vegetative propagation matter or items, as well as various fruits and vegetables including solanaceous fruits and vegetables, by treating the said plant matter or foodstuffs, plant matter and foodstuffs, during storage, distribution and marketing, preplanting, growing, and pre and post harvest, with a synergistic effective aqueous dosage comprising an effective concentration of hydrogen peroxide and silver ion and optionally comprising, an effective dosage of one or more additional components selected form the following types of substances:

(i) effective trace concentrations of dispersed metals or metal ions;

(ii) effective concentrations of other and/or additional hydrogen peroxide activators, synergists and promoters;

(iii) effective concentrations of hydrogen peroxide stabilizers and modifiers;

(iv) effective concentrations of pH regulators;

(v) effective concentrations of organic and/or inorganic additives, wherein the effective concentration of hydrogen peroxide, time of treatment and form of application are such as to prevent such plant matter and foodstuffs quality and/or quantity loss, but at the same time not so high as to cause or induce damage to the plant matter and foodstuffs themselves.

55. Plant-matter and foodstuffs when treated substantially as hereinbefore in claim 54.

56. An environmentally compatible process for reducing and eliminating harmful organisms and substances form equipment, materials, water, spaces and surfaces by treating said equipment, materials, water, spaces and surfaces with an effective dosage of a synergistic composition comprising an effective concentration of hydrogen peroxide, silver ion and an effective trace concentrations of dispersed metals or metal ions and optionally comprising, an effective dosage of one or more additional components selected from the following types of substances:

(i) effective concentrations of other and/or additional hydrogen peroxide activators, synergists and promoters;

(ii) effective concentrations of hydrogen peroxide stabilizers and modifiers;

(iii) effective concentrations of pH regulators;

(iv) effective concentrations of organic and/or inorganic additives.

AMENDED SHEET